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1 Q Okay. And the EPA says that there could be a factor of 20  
2 for the K Sub-M, correct?

3 A There's a great deal of uncertainty, yes.

4 Q So, K Sub-M could be 20 times bigger or 20 times smaller,  
5 correct?

6 A Yes.

7 Q And if K Sub-M is, in fact, 20 times bigger, then your  
8 doubling-dose estimate would be 20 times smaller, right?

9 A Yes. I might also point out, Mr. Finch, that I have used  
10 K Sub-Ms from more recent literature, like Berman and Crump,  
11 which have less uncertainty attached to them.

12 Q Do you agree that the contribution to risk of mesothelioma  
13 made by any specific exposure will depend on how that exposure  
14 fits into the general pattern of exposure to asbestos for that  
15 individual? Do you agree with that?

16 A Well, if the exposure you're talking about is large  
17 enough, I would agree with that. If the exposure is low, I  
18 don't know that it would contribute anything. But if you want  
19 me to assume that it contributes something to the risk, then I  
20 would be able to answer your question.

21 Q Would you also agree that whether or not a given asbestos  
22 exposure contributed to the risk of mesothelioma turns on the  
23 individual facts and circumstances of an individual person's  
24 history?

25 A I'm sorry, I don't understand what that means.

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1 Q Would you agree with me that in order to determine whether  
2 a given asbestos exposure caused or contributed to causing  
3 mesothelioma in a person, you'd have to look at the individual  
4 facts and circumstances specific to that person, correct?

5 A Well --

6 MS. HARDING: I object to foundation, but --

7 THE COURT: You've spent a long time arguing that  
8 this is beyond this witness's expertise, but if you want an  
9 answer --

10 MR. FINCH: Okay. I'll withdraw it. Let me ask a  
11 different question.

12 Q You wrote in your third report that, "While such detailed  
13 exposure information is not usually available, at the very  
14 least the total exposure and the type and dimensions of the  
15 asbestos fiber to which exposure occurred, discussed in more  
16 detail below, need to be considered." Do you agree with that?

17 A Yes.

18 Q To determine whether or not there is a risk of developing  
19 disease.

20 THE COURT: Mr. Finch, I'm sorry. Can you put this  
21 in a context?

22 MR. FINCH: Sure.

23 Q Could you open your report book to Moolgavkar Report 3?

24 THE COURT: This is Exhibit 539 you're going to now?

25 MR. FINCH: Yes, Your Honor.

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1 THE COURT: What page, please?

2 MR. FINCH: Yes, Your Honor.

3 Q And on Page 6 you have your dose response curves, correct?

4 A Yes.

5 Q And then carrying over to Page 7, you write, "The only way  
6 to determine whether a specific exposure to asbestos was a  
7 factor in causing a claimant's disease is to conduct an  
8 explicit evaluation of the role of that asbestos exposure in  
9 causing the disease relative to the risk of developing the  
10 disease spontaneously and the additional risks imposed by other  
11 exposures, including other asbestos exposures." I take it you  
12 agree with that?

13 A Yes.

14 Q Okay. And then you write, "Such an evaluation involves  
15 estimating the additional risk imposed by the exposure at issue  
16 after taking into account the probability of the disease -- "  
17 oh, I guess it's a typo. You repeated the same -- you didn't  
18 mean to repeat the exact same sentence twice, did you, Dr.  
19 Moolgavkar?

20 A That's somewhat inelegant, I guess, but --

21 Q Okay. The next sentence you say, "Then the contribution  
22 to risk made by any specific exposure would depend on how that  
23 exposure fits into the general pattern of exposure to asbestos  
24 for that individual. While such detailed information is not  
25 usually available, at the very least the total exposure and the

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1 type and dimensions of the asbestos fibers to which exposure  
2 occurred, discussed in more detail below, need to be  
3 considered." That's your opinion?

4 A Yes.

5 Q And you're talking about the total exposure to all sources  
6 of asbestos, right?

7 A That's correct.

8 MR. FINCH: Your Honor, I pass the witness.

9 THE COURT: Just a second, please.

10 (Pause)

11 THE COURT: Okay. Thank you. Mr. Ansbro?

12 MR. ANSBRO: Can I have just a moment, Your Honor?

13 THE COURT: Yes, sir.

14 (Pause)

15 UNIDENTIFIED ATTORNEY: I think we have to give due  
16 credit to Mr. Finch for staying exactly on the button. Sorry.

17 MR. FINCH: May I offer into evidence for  
18 demonstrative purposes only the exhibit that I used with Dr.  
19 Moolgavkar.

20 MS. HARDING: Well, Your Honor, my only objection is  
21 that the witness did not agree -- I mean, he agreed with -- the  
22 witness did not agree with the changes that were made to his  
23 doubling-dose and that there's any reason or -- to make those  
24 changes. So, I don't know what --

25 MR. FINCH: He agreed with the mathematics, Your

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1 Honor.

2 THE COURT: Yes, I'm trying to look to the exhibit,  
3 because this record is going to make absolutely no sense to me  
4 when I try to -- because I can't type math formulas on this  
5 computer. I don't have formula -- I don't have a typewriter  
6 that lets me do math formulas. So my notes and this transcript  
7 are not going to show math formulas in any kind of sense that  
8 will make sense. I need that exhibit in order to make my notes  
9 make sense.

10 MR. FINCH: Your Honor, I'm offering it solely for  
11 the purpose of showing the math formulas and not for whether he  
12 agreed or disagreed with -- had any -- the record is what the  
13 record is about what he said, but this is to show the math  
14 formulas that I used with him.

15 MR. BERNICK: But --

16 THE COURT: Yes, whether they're relevant or not I  
17 don't know.

18 MR. BERNICK: Your Honor, the only concern that I  
19 have and the only reason I'm interrupting is I think this goes  
20 to other matters.

21 MR. INSELBUCH: How many lawyers? One lawyer.

22 MR. BERNICK: Mr. Inselbuch, you can address the  
23 Court at the appropriate time. The -- these demonstratives, so  
24 called, are being used on cross examination. They're not being  
25 used on direct examination. I have no quarrel with the idea

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1 that Your Honor is going to need to see them in order to really  
2 remember anything of what happened. The difficulty is that if  
3 they come before Your Honor in any way, shape or form that says  
4 that they're, you know, of the record, that is that they're  
5 actually part of Your Honor's consideration, then we get into a  
6 precedent that really has no restraint. Because we have no  
7 witness adopting those demonstratives for any purpose --  
8 they're totally different from the demonstratives on direct.  
9 Each one goes -- has got a foundation. So we now have a cross  
10 examination of a lawyer who basically uses these demonstratives  
11 as cross examination outline, and they're endorsed by no  
12 witness.

13 THE COURT: No --

14 MR. BERNICK: They're simply Mr. Finch's argument.

15 THE COURT: I don't think that's correct. Maybe we'd  
16 better lay the foundation with this witness. I thought that  
17 Dr. Moolgavkar had agreed that the mathematical formulas, as  
18 reflected on the demonstrative exhibit, were taken from his  
19 report and were reflected correctly on the exhibit.

20 MR. BERNICK: Initially that was true. In the first  
21 couple slides, all that Mr. Finch did was take the Peto formula  
22 and move it around in order to solve for concentration.

23 THE COURT: Right.

24 MR. BERNICK: That was one thing. Those are  
25 argumentative, et cetera, et cetera, but the witness did

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1 acknowledge that. It's when all the calculations started that  
2 says I now want you to talk about, well, what if the background  
3 -- the calculation of background rate the witness did not  
4 endorse. The adjustment to the background rate the witness did  
5 not endorse, not only in terms of whether it was substantively  
6 correct, but even the math.

7 THE COURT: That -- I think that's correct. I  
8 believe the first couple of slides -- maybe we're going to have  
9 to mark each --

10 UNIDENTIFIED ATTORNEY: No, no --

11 THE COURT: -- page individually. We're going to  
12 mark each page individually. You're going to ask the witness  
13 whether he does or doesn't agree with each page individually as  
14 the calculations that you've put on so I know whether I can use  
15 them with respect to his testimony as substantive evidence. If  
16 it's just your argument, I cannot accept it in that respect.  
17 You can put a witness on to get them adopted, but not through  
18 this witness.

19 BY MR. FINCH:

20 Q Dr. Moolgavkar, do you agree --

21 THE COURT: Let's start -- let's get them up one at a  
22 time.

23 UNIDENTIFIED ATTORNEY: Use the Elmo?

24 UNIDENTIFIED ATTORNEY: Elmo.

25 MR. FINCH: Elmo. Can I use the Elmo?

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1 THE COURT: Yes, certainly.

2 MR. FINCH: All right. Why don't we call this  
3 ACC/FCR-2086-1.

4 THE COURT: All right.

5 Q Do you agree with -- that that's Dr. Peto's formula and  
6 you agree with the math on that slide, correct, Dr. Moolgavkar?

7 A Yes. However, I used only the second line. I did not use  
8 the first and the third line of the formula. And I used only  
9 the second line. That's relevant to the rest of your  
10 calculations anyway, so, I mean, I don't know what the legality  
11 of this is, but it was only the second line that I used.

12 MR. FINCH: Your Honor, I would offer 2086-1 for the  
13 purpose of demonstrating the formulas.

14 THE COURT: All right. I will accept 2086-1 and  
15 consider only line 2. Let me make a note, please.

16 Q It would also include the definitions at the bottom,  
17 correct --

18 THE COURT: And the definitions.

19 Q -- Dr. Moolgavkar?

20 A Yes.

21 MR. BERNICK: It's actually not the Moolgavkar  
22 formulas. This is the Peto formula.

23 MR. FINCH: It's the Peto --

24 THE COURT: I understand.

25 Q It's the Peto formula as set forth in Dr. Moolgavkar's

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1 report, correct?

2 THE COURT: Yes, I understand that.

3 Q Correct, Dr. Moolgavkar?

4 A Yes.

5 THE COURT: All right. Next?

6 Q 2086-2 --

7 THE COURT: Mark it, please.

8 A Yeah, that's -- that's fine.

9 Q 2086-2 is -- shows the math of how you solve for -- for  
10 the lifetime risk of mesothelioma, correct?

11 A Yeah.

12 MR. FINCH: I'm offering 2086-2.

13 THE COURT: I'll accept it as a demonstrative.

14 Q 2086-3 shows how you solve for the fiber concentration?

15 A That's correct.

16 Q That's correct.

17 MS. HARDING: Wait. Your Honor, I believe Dr.  
18 Moolgavkar testified that the BGR there is not -- is supposed  
19 to be background rate.

20 Q The BGR is lifetime risk of mesothelioma?

21 A Yes.

22 Q Okay. So if I make this -- 2086-3, instead of BGR I just  
23 put BGR equals lifetime risk?

24 A Lifetime background risk.

25 MR. FINCH: I would offer that, Your Honor.

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1 THE COURT: I'll take that as a demonstrative.

2 Q 2086-4, again with the correction that BGR is lifetime  
3 background risk of mesothelioma --

4 THE COURT: Mark it, please.

5 Q That, Dr. Moolgavkar --

6 UNIDENTIFIED ATTORNEY: 2086.

7 Q -- shows how you solve for the doubling-dose?

8 A Yes.

9 MR. FINCH: I offer that for demonstrative purposes,  
10 Your Honor.

11 MS. HARDING: Again, I think you should not make the  
12 BGR.

13 UNIDENTIFIED ATTORNEY: Well, no (indiscernible).

14 MS. HARDING: All right. It's in the first one I  
15 guess. That's fine.

16 Q 2086-6.

17 THE COURT: I think you're five.

18 MR. FINCH: No, I skipped five. I never showed him  
19 five.

20 THE COURT: Okay.

21 Q 2086-6, that just takes -- that's your formula and that is  
22 the information that comes out of your September -- I mean your  
23 June 11, 2007, report that shows what the variables are,  
24 correct, Dr. Moolgavkar?

25 A Yes.

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1 MR. FINCH: I offer that for demonstrative purposes,  
2 Your Honor.

3 THE COURT: And again, the BGR definition is changing  
4 again?

5 MR. FINCH: The BGR definition is the same as it was  
6 before.

7 UNIDENTIFIED ATTORNEY: 2086, is there a dash --

8 THE COURT: All right. I'll take it for background.

9 MR. FINCH: Dash 6.

10 UNIDENTIFIED ATTORNEY: Dash 6.

11 THE COURT: I'm sorry, for demonstrative.

12 MR. FINCH: Dash 6, 2086-6 --

13 THE COURT: 2086-6 is accepted --

14 UNIDENTIFIED ATTORNEY: Better write it on there.

15 UNIDENTIFIED ATTORNEY: Better write it.

16 THE COURT: -- as a demonstrative.

17 Q All right. 2086-7, Dr. Moolgavkar, the math is correct,  
18 correct?

19 A Um --

20 MS. HARDING: I object to the -- there is no  
21 foundation for that question. He's already told you that the  
22 math is not correct, and you can't just simply reduce it the  
23 way that you've done.

24 MR. FINCH: He didn't testify the math is not  
25 correct.

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1 Q The lifetime background risk of mesothelioma used in your  
2 formula is .00036, correct, Dr. Moolgavkar?

3 A That's correct.

4 Q All right. If -- and that equates to a doubling-dose of  
5 3.2 fiber years, correct?

6 A That's correct.

7 Q If you divide the lifetime background risk of mesothelioma  
8 by two, that results in .00018. That's correct, is it not?

9 A That's correct.

10 Q And if you do that, then the doubling-dose is also cut in  
11 half, correct?

12 A Correct.

13 Q So the mathematics on this slide are absolutely correct?

14 A Correct.

15 MS. HARDING: Well, except, Your Honor, first of all,  
16 lifetime background rate should be reflected appropriately  
17 there. That's the first thing. But I just -- I think it's  
18 important -- I recall that Dr. Moolgavkar talked about the --  
19 that the background rate and the lifetime background risk do  
20 not --

21 THE COURT: Equate --

22 MS. HARDING: -- automatically reduce in that way.

23 THE COURT: That's correct. Then this --

24 MR. FINCH: I'm not talking about rate at all. I'm  
25 talking about lifetime background risk.

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1 THE COURT: Yes, but I believe what the doctor said  
2 is that you have to make a big assumption in this regard, which  
3 you would not let him identify. You said he had to do it on  
4 redirect. But his point was that you cannot assume that across  
5 the whole cohort that the risk will change unilaterally, and,  
6 as a result, you cannot make the equation that it will be a 50  
7 percent reduction in the formula simply because you change  
8 those factors. He agreed that there would be a decrease in the  
9 risk, but not that it would be 50 percent. Did I  
10 misunderstand, doctor?

11 THE WITNESS: Actually, Your Honor, in this he is  
12 making the assumption that the lifetime background probability  
13 is cut in half, and if he makes that assumption then the math  
14 on this slide is correct.

15 THE COURT: So, you agree with the math?

16 THE WITNESS: I agree with the math.

17 THE COURT: Do you agree with the assumption?

18 THE WITNESS: Well, it is an assumption. I -- and I  
19 don't know where it comes from, but it's an assumption, and if  
20 the assumption is correct, the math is correct.

21 MR. BERNICK: Your Honor, again, for purposes of this  
22 trial, we're now establishing -- this is David Bernick -- we're  
23 now establishing a precedent that the witness -- that the cross  
24 examining attorney can ask the witness to do something -- we  
25 can have him pull out a calculator and make a gagillion

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1 assumptions, and the basis of that -- counsel's argument comes  
2 before the Court in the form of a demonstrative. When the  
3 witness says I don't know that that assumption is true, then  
4 the math doesn't really mean anything other than it's counsel's  
5 argument.

6 THE COURT: Yes, that's the problem I have. I have  
7 no problem with the first half of this slide -- with the first  
8 half of the slide because the witness has adopted that as his  
9 calculation. The second half he doesn't have any problem with  
10 the math, but it doesn't relate to anything because he has no  
11 testimony on the record that indicates that the assumption is  
12 true.

13 MR. FINCH: Well, the 3.6 times ten to the minus  
14 fourth comes from Price and Ware assuming that all female cases  
15 are background risk cases --

16 THE COURT: And he has --

17 MS. HARDING: He's already closed his cross  
18 examination.

19 THE COURT: He has, and the witness has challenged  
20 your assumption on that Price and Ware article saying they are  
21 two independent statements, that they are not tied together in  
22 the same fashion that you wanted him to tie them together, and  
23 he's testified very clearly about that, that they are not --  
24 they are not married at the hip. So, you're not -- he has  
25 agreed that there is a decrease. He has not agreed that the

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1 decrease is a 50 percent decrease simply because you change a  
2 factor 50 -- by 50 percent.

3 MR. FINCH: You would agree, though, if he would  
4 agree with the math, though, that if you divide the background  
5 risk in two --

6 THE COURT: He does, but that's your argument --  
7 that's your argument. That's not his evidence. I will accept  
8 the first half. Strike out the second half, and I will take  
9 the rest of this exhibit as a demonstrative. You may argue the  
10 second half. It's your argument, but it is not the witness's  
11 testimony.

12 Q 2086-8.

13 A Well, it seems to me that the same objection applies to  
14 this now.

15 Q You agree with the -- rate should be risk, correct?

16 A I agree with the math, but, I mean, you've just been  
17 through all this --

18 UNIDENTIFIED ATTORNEY: It's the same thing --

19 A -- on the previous slide.

20 THE COURT: All right. Now, I'm sorry. I've  
21 forgotten what this one was. I --

22 MR. FINCH: Same thing.

23 MS. HARDING: It's the same thing, just with a  
24 different assumption, now a 75 percent assumption.

25 THE COURT: Oh, this is the 75 percent. Okay. The

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1 witness did testify that if you changed the assumption to 75  
2 percent, his .02 would change to .08. He agreed with the math,  
3 but he did not -- you had nothing in the testimony that  
4 indicated that he would agree with the assumption. So that's  
5 the problem. So, 2086 is argumentative. I will not take 2086,  
6 but you can argue it.

7 UNIDENTIFIED ATTORNEY: 2086-8.

8 THE COURT: Oh, I'm sorry. Thank you. 2086-8 I will  
9 not accept as a demonstrative.

10 MR. FINCH: Fine. So, Your Honor may I hand up  
11 2086-1, 2, 3, 4, 6, and the first half of 2086-7?

12 THE COURT: Yes.

13 MR. FINCH: And since this is the only copy of that,  
14 would it be possible to get copies from the Court at an  
15 appropriate time?

16 THE COURT: Yes, I can do -- I can do that. I'm not  
17 sure they're going to be in color. Do they need to be color?

18 MR. BERNICK: They don't need -- we would accept --  
19 if Your Honor would accept it, we'd accept -- we accept that if  
20 counsel wants to make copies and then furnish the original to  
21 the Court that the copies can be furnished at some other time  
22 -- you know, later today.

23 THE COURT: All right, that's fine.

24 MR. FINCH: Okay, if that's acceptable to --

25 THE COURT: Does anybody else need these for purposes

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1 of the witness anyway today? Okay. All right, Mr. Finch,  
2 thank you.

3 MR. FINCH: Thank you, Your Honor.

4 CROSS EXAMINATION

5 BY MR. ANSBRO:

6 Q Good afternoon, Dr. Moolgavkar.

7 A Good afternoon.

8 Q John Ansbro. We met at your deposition.

9 A Yes.

10 Q My examination will be brief. I first want to ask you  
11 some questions about your -- focus back on your doubling-dose  
12 calculation. The range, in your view, of the incidence, the  
13 bankground incidence, of mesothelioma as you state in your  
14 report is between two and four incidents per year, correct?

15 A That's correct.

16 THE COURT: Two and four per year per what  
17 population?

18 MR. ANSBRO: The --

19 THE WITNESS: Per million.

20 Q Say it again, I didn't --

21 A Per million.

22 Q Per million. And we discussed in your deposition that you  
23 consider that to be a reasonable range, do you recall that?

24 A Yes. Yes, if you are looking at the entire lifetime, that  
25 is if you are looking over all ages, from birth up to say age

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1 80 or 90.

2 Q Okay. Now, you also testified, and I just want to confirm  
3 with you here today, that in your view as many -- as much -- as  
4 many as -- as much as 50 percent of mesotheliomas in women  
5 could be asbestos-related. Do you recall testifying to that,  
6 sir?

7 MS. HARDING: I don't think there's a foundation for  
8 that, Your Honor.

9 UNIDENTIFIED ATTORNEY: There's no --

10 THE COURT: I believe his earlier testimony  
11 recognized an article in which that statistic was stated, and  
12 then the witness had a different view, about 23 percent if I  
13 recall. Maybe -- better ask the witness. My recollection may  
14 not be accurate, Mr. Ansbro.

15 Q Is it your view -- am I correct in understanding that as  
16 much as 50 percent of mesothelioma incidents in women could be  
17 caused by exposure to asbestos?

18 A Yes, that was a -- that is a conservative estimate in the  
19 sense that I think that's probably the upper limit.

20 Q Now, when you calculated your doubling-dose of 3.2 fibers,  
21 you used in that calculation, as I understand it, the high  
22 range of the Price and Ware lifetime estimate, correct?

23 A I used the high range reported in the abstract. However,  
24 I consider it to be conservative because we are really  
25 interested in the lifetime risk conditional upon surviving up

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1 to age 20 or 30; that is, we are only interested in the  
2 lifetime risk of individuals who have already survived or lived  
3 up to the age of 20 or 30, and that lifetime risk is actually  
4 higher because cancer rates go up with age. So, I consider  
5 that to be a reasonably conservative assumption.

6 Q But that -- in the Price and Ware article, that is their  
7 high range, that's the top end of their range.

8 A Top, but they look at the entire lifetime probability, and  
9 I'm saying that one should compute the probability conditional  
10 on living up to age 20. Let me give you an example. If you  
11 ask -- when a child is born and you ask, what is the lifetime  
12 probability that that child will develop colon cancer, you come  
13 up with some number. I don't know what it is, maybe seven or  
14 eight percent. But, you ask an individual who is age 70, who  
15 has already survived up to age 70, and what is the probability  
16 of colon cancer in his or her lifetime? Much higher, right?  
17 That's because it's conditioned on having survived until age  
18 70. So that's the idea.

19 Q All right.

20 THE COURT: Pardon me. May I see if I understand  
21 this? You're saying, doctor, that the starting point for the  
22 cancer risk if you're already age 20 is a higher threshold than  
23 if you're zero or one when the risk starts, because even though  
24 you're going to live a longer time, your risk of getting cancer  
25 of any type increases with age?

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1 THE WITNESS: Right, but the fact that you already  
2 lived up to age 20 means that -- this is a concept called  
3 conditional probability. So, as I said in my example, if you  
4 ask somebody -- if you ask about somebody who is just born,  
5 what is the probability that that individual will get cancer of  
6 any type, let's say colon cancer, it may be seven or eight  
7 percent by the time they reach age 80 or 85 or before they die.  
8 But, if you ask somebody who is already survived up to age 70  
9 what is the probability that that individual will develop  
10 cancer before he or she dies, that's much larger. So, that's  
11 the idea.

12 THE COURT: I understand the idea. What I'm not sure  
13 is how that translated into your -- into the question that Mr.  
14 Ansbro was asking, which is how that factored into your  
15 doubling-dose.

16 THE WITNESS: Right. What I'm saying is that the  
17 lifetime probability that is reported in Price and Ware is the  
18 entire lifetime probability starting at age zero.

19 THE COURT: All right.

20 THE WITNESS: What we are interested here is in Grace  
21 workers who we expected to be exposed age 20 onward.

22 THE COURT: I see.

23 THE WITNESS: Yeah.

24 THE COURT: Okay. Thank you.

25 BY MR. ANSBRO:

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1 Q Just going to shift gears, ask you from a different  
2 perspective some questions about, again, your doubling-dose  
3 calculation. At Table 2, in Appendix 2 of your report --

4 MR. ANSBRO: Tom, if we could take a look at that,  
5 this is ACC/FCR-538 -- the ELMO off, is it?

6 MS. HARDING: I'm sorry, John. What number?

7 MR. ANSBRO: This is ACC/FCR-538. It's Report  
8 Number 2.

9 MS. HARDING: Thank you.

10 Q Dr. Moolgavkar, this is in your smaller binder that Mr.  
11 Finch distributed earlier.

12 A Yeah. I prefer to see it on my screen if it comes up.

13 Q I'm going to ask you some questions because I'm not clear  
14 yet on one aspect of this. Your report sets forth at the top  
15 what you describe as the estimate of the cumulative exposures  
16 to asbestos required to double the risk of mesothelioma,  
17 correct?

18 A Yes.

19 Q That is what we're seeing on the top line there, where --  
20 K Sub-M, that's the potency derived from the EPA numbers?

21 A Yes.

22 Q Then over on the right we have the results of your  
23 calculation applying the Peto method?

24 A Yes.

25 Q Now, you sent an e-mail in response to some requests from

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1 Mr. Bailor. If I could put this on the ELMO and show this to  
2 you. This was in response --

3 THE COURT: Cathy, you're going to have to switch it.  
4 It shows on the double screens, but not on the single screens  
5 one at a time. Yes, that's right, thank you.

6 Q Are you able to see that, doctor?

7 A Yes.

8 MR. ANSBRO: Is Your Honor able to see that?

9 THE COURT: Yes.

10 Q Now, this is an e-mail message that you wrote explaining  
11 the computations that are necessary to arrive at the cumulative  
12 exposures that you presented in Table 2, is that a fair summary  
13 of the e-mail?

14 A Yes, yes.

15 Q In the second paragraph, I'm going to be reading from this  
16 portion, you write that, "The probability of mesothelioma can  
17 be derived by elementary calculus to be P equal to 4 raised to  
18 -- 45, to the power of four, times K Sub-M times F divided by  
19 four, where P is the cumulative probability." See where I've  
20 read that, doctor, down here?

21 A Yes.

22 UNIDENTIFIED ATTORNEY: If you could just zoom in a  
23 little bit, it'd make it easier for everybody to -- I'm sorry.

24 Q All right, doctor. So what I've focused on is where  
25 you've written over here that, "For the exposure scenario

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1 described in my report," you go on to say, "the probability of  
2 mesothelioma can be derived by elementary calculus to be P  
3 equals 45 to the fourth power times K Sub-M times F, and all of  
4 that divided by four, where the cumulative probability -- "

5 UNIDENTIFIED ATTORNEY: Where P is the cumulative  
6 probability.

7 Q " -- where P is the cumulative probability, for this to be  
8 the background risk, background, BGR, set P equal to two times  
9 the background," and the "this" that's referred to there is the  
10 cumulative probability, right?

11 A Yes.

12 Q So, you set the background equal to the female  
13 mesothelioma rate which, as I understand it, is the one you  
14 derived from Price and Ware, correct?

15 A The female background risk, the background risk.

16 Q All right. You clarified that earlier, the lifetime  
17 background risk?

18 A Right.

19 Q That was a 3.6 times ten to the minus four, correct?

20 A Correct.

21 Q And then you solve for the cumulative exposure, using CE  
22 equal to F times 45, you see that down here, is that correct?

23 A Right.

24 Q And F in that equation is the exposure concentration, the  
25 fiber exposure concentration itself?

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1 A Correct.

2 Q Yes?

3 A Yes.

4 Q So, if we look back then at the first row of your report  
5 for potency value as we saw, you calculate that the incidence  
6 of asbestos-related mesothelioma would be twice the background  
7 incidence at an exposure of 3.25 fibers per year, correct?

8 A Let me -- I don't have that report up in front of me here.

9 MR. BERNICK: Can you see it, Dr. Moolgavkar? Can  
10 you see what you need to be able to read?

11 THE COURT: Not yet.

12 THE WITNESS: Not yet.

13 THE COURT: She has to turn the ELMO on.

14 MR. ANSBRO: I was referring to -- back to Appendix  
15 2, Page 23.

16 UNIDENTIFIED ATTORNEY: It's not fully displayed  
17 there. It's cut off in part.

18 Q Is there something else you need to see on that page,  
19 doctor?

20 A No, I just want to see where you're reading.

21 Q I wasn't reading from the report. I was framing a  
22 question.

23 A Yes, go ahead.

24 Q Do you want me to repeat the question?

25 A Please.

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1 MS. HARDING: Can you put it --

2 MR. ANSBRO: It's simply this. It's just summing it  
3 up.

4 Q So, at the first row in Table 2, with that potency rate of  
5 ten -- of one times ten raised to the minus eight power, you  
6 calculate that the incidence of asbestos-related mesothelioma  
7 will be twice the background incidence at an exposure of 3.2  
8 fibers per milliliter year.

9 A Yes.

10 Q Doctor, am I correct that the total incidence of  
11 mesothelioma for all sources would be three times the  
12 background incidence?

13 THE COURT: I'm sorry, would you say that again? The  
14 total --

15 Q Am I correct that the total incidence of mesothelioma from  
16 all sources would be three times the background incidence?

17 MS. HARDING: Under what scenario? I'm -- I just --

18 Q Under the calculation that you've done.

19 A No, I -- I'm sorry, I don't understand that. I don't see  
20 how you get that. I'm trying to understand the origin of that  
21 question. I don't understand it.

22 Q Well, the origin of the question is this. In your e-mail,  
23 you describe how you've set P equal to two times the  
24 background.

25 A Right.

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1 Q Where did that two times the background multiplier come  
2 from?

3 A Ah, okay. That comes from the fact that we want to find  
4 the doubling-dose so we want to find the cumulative exposure at  
5 which the background probability is doubled. So it just comes  
6 from that.

7 Q Let me ask you then. As your -- by setting that am I not  
8 correct though then, doctor, that by setting it P equal to 2  
9 times the background that, in fact, at the 3.2 fiber years,  
10 that represents not a doubling of the background risk, but a  
11 tripling of the background risk?

12 A No, it doesn't.

13 Q Why not?

14 A Well, I think I'll try to understand the question you're  
15 asking me and answer it. The Peto formula, you see, is a  
16 formula for cohorts exposed to asbestos and it includes the  
17 background. So when you use the Peto formula, it's telling you  
18 what the total probability or the total rate of mesothelioma  
19 is in that cohort, including the background. I think that's  
20 where the confusion comes from, am I right?

21 A Well, that's your explanation. The application of setting  
22 -- or with the method of setting P equal to two times the  
23 background, has that been done in other peer-reviewed papers  
24 that you have seen?

25 A Well, it is such a simple calculation involving only a

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1 first course in calculus that I don't think any  
2 self-respecting journal would accept it as a peer-reviewed  
3 calculation or paper.

4 Q But my question was have you seen that done -- you  
5 mentioned earlier that the EPA uses the Peto model, did they  
6 set P equal to two times the background?

7 A No. I have not seen that done and I was trying to explain  
8 to you why I don't think I've seen that done.

9 Q And just Berman and Crump you mentioned also, they didn't  
10 do it that way either, did they?

11 A No, none of them is interested in the doubling-dose.

12 Q Let me show you -- I have a demonstrative. It's been  
13 marked for identification.

14 MR. ANSBRO: I'm just going to put this on the ELMO,  
15 Your Honor, as FCD as future claimants' demonstrative.

16 THE COURT: Cathy --

17 MR. ANSBRO: One of two.

18 MS. HARDING: Your Honor, it's the same thing all  
19 over again and he's -- the witness has just described, quite  
20 clearly, why the line of questioning is not relevant and not  
21 correct. And at this late date in the afternoon for the  
22 witness to say, I object to this line of questioning --

23 THE COURT: Yes. We just went over this with the  
24 ACC, I think. It looks to be --

25 MR. ANSBRO: Well, Your Honor, I think this one is a

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1 little bit different.

2 THE COURT: All right.

3 MS. HARDING: I agree that the calculation is  
4 different, Your Honor, but the witness has just testified that  
5 for the reason why you set it the way he set it -- he's offered  
6 no impeachment to suggest that he's wrong and nothing to  
7 suggest that he hasn't done it correctly, and now he wants to  
8 do another calculation. I just think at this late date -- I  
9 mean, we're already over their estimates of their cross  
10 examination. I still have to do redirect. And I think it's a  
11 waste of time, Your Honor.

12 MR. ANSBRO: It's not a waste of time, Your Honor.  
13 I'll be brief with this. What we're going to ask the witness  
14 is if we change the potency here -- which as I understand is a  
15 constant -- will the doctor agree that as the Peto model is  
16 applied, that these results will obtain.

17 THE COURT: Go ahead.

18 MR. ANSBRO: The discussion earlier with the ACC  
19 counsel was with respect to changing the background -- the  
20 lifetime background rate.

21 THE COURT: Go ahead.

22 MS. HARDING: Your Honor --

23 THE WITNESS: We actually also had a discussion  
24 regarding potency.

25 THE COURT: We did, but this is cross examination.

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1 Go ahead, but let's narrow the focus a little so at least we  
2 stick to potency of products that are available with respect to  
3 Grace issues about claims that we will have in this case in the  
4 United States or Canada, please.

5 MR. ANSBRO: We'll be brief, Your Honor.

6 Q Doctor, if you could just quickly look at this then. My  
7 question simply is this. As you decrease the potency --

8 A First, the formula is wrong.

9 Q The formula above is wrong?

10 A Is wrong. It's got 45 to the third power rather than the  
11 fourth power.

12 Q All right. That was there for demonstrative purposes.  
13 If we change the potency, for example, if we cut it in half, if  
14 I understand the way you've applied the Peto model here, and we  
15 have 1.6 fiber years, that would give us one times the  
16 background rate, which would be the background rate, yes?

17 A No. I don't understand this slide at all, I'm sorry. If  
18 you cut the potency one times the background rate will be the  
19 background rate? No, I don't understand this.

20 Q If K Sub-M, the value of that was cut in half, would it  
21 not have similarly a 50 percent reduction in the background --  
22 in the potency risk?

23 A Sorry?

24 Q The relative risk. Yeah.

25 A I need to --

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1 (Pause)

2 Q The cumulative exposure --

3 MR. ANSBRO: Thanks for that.

4 Q -- if we change the cumulative exposure -- I've been using  
5 potency. I've been using the wrong term. If you cut the  
6 cumulative exposure in half and then cut it in half again, do  
7 you agree that the results would follow with respect to the  
8 background rate?

9 THE COURT: What results?

10 Q So, for example, if we go -- if our cumulative exposure  
11 shrinks from 3.2 to 1.6, that would give us, as you've applied  
12 the Peto model, one times the background rate which would be  
13 the background rate.

14 A I'm sorry, I just don't understand this.

15 MR. ANSBRO: Well, I'll tell you what, Your Honor,  
16 I'll end at that point. My calculus and analysis of these  
17 matters is a little bit dated. We'll leave that as it is.  
18 Pass witness.

19 THE COURT: All right.

20 MR. ANSBRO: I pass the witness.

21 MS. HARDING: Your Honor, could I have a short --

22 THE COURT: We'll take a ten-minute recess and then  
23 start redirect.

24 MS. HARDING: Thank you, Your Honor.

25 THE COURT: Yes. Thank you.

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1 (Recess)

2 THE COURT: Please be seated. Doctor?

3 MS. HARDING: I'm sorry, Your Honor.

4 THE COURT: That's all right. Ms. Harding, are you  
5 ready?

6 MS. HARDING: Yes.

7 THE COURT: All right.

8 REDIRECT EXAMINATION

9 BY MS. HARDING:

10 Q Dr. Moolgavkar, I'd first like to talk to you about  
11 authoritative pronouncements. Do you understand what I'm  
12 talking about?

13 A Do you mean documents like the Helsinki criteria?

14 Q Yes. The first thing I want to ask you about is the World  
15 Health Organization. What is the World Health Organization?

16 A Well, it's an organization, organized, I think, under the  
17 auspices of the United Nations headquartered in Geneva and its  
18 mandate is to be concerned with global health.

19 Q And you were shown a statement from The World Health  
20 Organization. Do you recall seeing the statement? It's  
21 asbestos -- increased risk for asbestosis versus lung cancer  
22 and mesothelioma --

23 THE COURT: Ms. Harding, I'm sorry, but it's very  
24 late and you folks just have to slow down. I can't even hear  
25 that fast let alone type that fast. Okay?

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1 MS. HARDING: I'm sorry. I'm trying to get through  
2 it quickly.

3 A And could you blow that up, is that possible?

4 Q I don't think I can blow it up. Exposure to chrysotile  
5 asbestos poses an increased risk for asbestosis, lung cancer  
6 and mesothelioma in a dose-dependent manner. No threshold has  
7 been identified if a person has been at risk. Do you recall  
8 being asked about that statement?

9 A Yes.

10 Q And it's your testimony, as I understood it, here you did  
11 not disagree with that statement, correct?

12 A That is correct.

13 Q Okay. You were also asked that whether there's a  
14 debate in the scientific community about that very statement,  
15 correct?

16 A Yes.

17 Q Do any of the opinions that you've expressed here today  
18 depend any way upon resolving the debate about chrysotile  
19 asbestos as described in the (indiscernible)?

20 A No, they do not.

21 Q Now, there was another statement in this same document  
22 which I'd like to ask you about. And it's E, with no page  
23 number. But it says, "More epidemiological data are needed  
24 concerning cancer risks for populations exposed to fiber levels  
25 below 1 fiber milliliter as well as continued surveillance of

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1 asbestos exposed populations." Do you agree with that  
2 statement?

3 A Yes, I do.

4 Q Is that statement consistent with your testimony here  
5 today?

6 A Yes, it absolutely is.

7 Q Why is it consistent?

8 A Well, because none of my calculations depend on any  
9 assumption of thresholds or any assumptions regarding safe  
10 levels for asbestos. And I think in the absence of any  
11 information at low levels, any direct information at low levels  
12 of exposure, I think it important to continue work in that area  
13 to see if any risks can positively be identified.

14 Q I want to talk a little bit more about -- I think there  
15 was another question about more opinion about whether radiation  
16 is capable of causing mesothelioma. Do you recall that  
17 discussion?

18 A Yes, I do.

19 Q And what is your opinion with regard to radiation?

20 A Well, first of all, is I find it strange that The  
21 Institute of Medicine report that says that radiation is a  
22 hypothesized cause of mesothelioma. It references either a  
23 book chapter or a paper by Dr. Roggli which was published in  
24 2004. So, that the report is not current or up-to-date with  
25 respect to its review of the literature on radiation and

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1 mesothelioma. There have been several papers -- there are  
2 several papers that have appeared after 2004. In fact, I  
3 believe all the papers referenced in my reports appeared after  
4 2004 and those papers, I think, clearly indicate that radiation  
5 therapy is a risk factor for mesothelioma.

6 Q What types of studies did you rely upon in forming that  
7 opinion?

8 A Well, these were properly conducted epidemiological  
9 studies. They were primarily studies of individuals who had  
10 cancer sometime and were then treated for that primary tumor  
11 with high dose radiation. And the price that they paid for  
12 that was the development of secondary cancers because radiation  
13 is a known carcinogen. It's like a double-edge sword. It  
14 kills the cancer that you currently have, but it also sets the  
15 stage for cancer in the future. And that's how they found the  
16 increased risk of mesothelioma.

17 Q Doctor, you were asked about whether the studies  
18 controlled for the confounding of asbestos exposure threat, do  
19 you recall that?

20 A That's correct.

21 THE COURT: I'm sorry. Ms. Harding, I can't hear  
22 you. I'm sorry.

23 MS. HARDING: I don't think it's working. I'll move  
24 it.

25 Q Dr. Moolgavkar, you were asked whether the studies

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1 controlled for the confounding that might be associated with  
2 asbestos exposure and you asked if -- you said they didn't and  
3 you asked if counsel wanted an explanation as to why that  
4 wasn't necessary in these types of studies. Would you like to  
5 explain that, please?

6 A Well, in epidemiological studies it is necessary to  
7 control for another risk factor that might affect your  
8 conclusions if it is what is called a confounder. In other  
9 words, if you believe that it is likely that the exposure that  
10 you're investigating -- in this case radiation -- is in some  
11 way correlated with another exposure-like asbestos. So if you  
12 have reason to believe that people who received radiation  
13 therapy might also have been exposed to asbestos, it would be  
14 important to control for asbestos exposure. But when people go  
15 in for treatment for their primary cancers, one would not  
16 expect that the people who get radiation therapy have been  
17 exposed to asbestos. There's no reason to believe that there  
18 would be a selection of people who were exposed to asbestos for  
19 radiation therapy. So, there's no need to correct for that  
20 confounder.

21 Q The way that concept has always kind of been explained to  
22 me and I've kind of understood it, is that as an epidemiologist  
23 there are times when you can assume an equal distribution of an  
24 important other exposure in both your cases and controls, is  
25 that the same concept?

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1 A Well, these are not case-control studies, but it is the  
2 same concept that there's no reason to believe that there is  
3 not an equal distribution of people with asbestos exposure  
4 among the patients who received radiation or who received some  
5 other kind of treatment.

6 Q Okay. Now, more importantly, the question I want to ask  
7 you is, you did not discuss your opinion regarding radiation  
8 mesothelioma today, correct, in your direct testimony, correct?

9 A That's correct.

10 Q Okay. Was -- or is your opinion regarding causation of  
11 mesothelioma by radiation, does it somehow -- is it necessary  
12 for radiation to be a cause of -- an established cause of  
13 mesothelioma for any of the opinions that you've rendered here  
14 today?

15 A No.

16 Q Okay. If it were determined that it were not a cause of  
17 mesothelioma, would that change your opinions here today?

18 A No.

19 MS. HARDING: Your Honor, may I walk over to the  
20 board for a second?

21 THE COURT: Sure.

22 MS. HARDING: Thank you. Actually, I'll stay right  
23 here.

24 Q We don't have the scientific method board up anymore, but  
25 you recall the board we had up discussing the scientific

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1 method?

2 A Yes.

3 Q Okay. Is it fair to say that epidemiologists look at  
4 associations of disease and exposures, is that --

5 A That's what each individual study does, look for  
6 associations between exposure and disease, yes.

7 Q Okay. The question of the understanding of a dose  
8 response relationship with a potential carcinogen and disease,  
9 is that the same thing as finding an association or not an  
10 association in an epidemiological study?

11 A Well, no. The two are related but distinct concepts. In  
12 many epidemiological studies you can -- you seek only  
13 associations because good information on dose may not be  
14 available. So there you look only for associations.

15 In other epidemiological studies when good  
16 information on dose is available then, of course, the goal of  
17 the epidemiological study should be not only to find an  
18 association, but to examine the dose response relationship.

19 Q Okay. To render valid scientific conclusions regarding  
20 dose response relationships with disease, is objective  
21 quantifiable exposure measurement data necessary?

22 A Yeah. It's a prerequisite.

23 Q Okay. And is it also a prerequisite that you have to have  
24 studies -- a controlled study?

25 A Yes. I'm not exactly sure what you mean by a controlled

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1 study, but it's important to have a properly designed study and  
2 if it's a case-controller or cohort study, I guess it could be  
3 a controlled study.

4 Q Okay. Is there any scientific method available to be able  
5 to render reliable scientific conclusions about dose response  
6 without those two fundamental pieces of epidemiological data?

7 A I don't think so.

8 Q And have the methods that you have used to render your  
9 opinions on dose response today follow the accepted methods in  
10 your field?

11 A Yes. I have used the standard models. I've used the  
12 linear excess relative risk model for lung cancer and I've used  
13 the widely-accepted Peto model for mesothelioma. So I would  
14 say yes, absolutely.

15 Q Now, I'd like to talk briefly, if I can, about some of the  
16 papers that you were asked about today. First, I want to show  
17 you one of the -- I think these are a series of papers that  
18 were shown to you to suggest that these were somehow important  
19 reliable evidence about dose response relationships in  
20 mesothelioma and I'd like to ask you a few questions. This is  
21 the mesothelioma, pleural, peritoneum --

22 THE COURT: Can't hear you, Ms. Harding.

23 MS. HARDING: This is ACC/FCR-646, Your Honor,  
24 mesothelioma of plural and peritoneum following exposure to  
25 asbestos in the London area.

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1 Q Dr. Moolgavkar, you have seen this paper before, correct?

2 A Yes.

3 Q Okay. It's true this is a case series?

4 A Well, this is kind of like an epidemiological sort of way  
5 of mesothelioma of the pleura and peritoneum in the London  
6 area. There are no controls. And this paper was written in  
7 1965 when really the principles of epidemiological studies were  
8 also not properly understood.

9 Q Harking back to the methods we just discussed for  
10 understanding dose response relationships and risk of  
11 mesothelioma, would this paper that we just discussed be a  
12 paper that would provide reliable information on that issue?

13 A No. There's no information on exposure in that paper.

14 Q I'd like to ask you about the paper by Dr. Rodelsperger.  
15 You actually have prepared some slides to discuss the  
16 Rodelsperger paper, correct?

17 A I believe, yes, both the Rotsewil and Rodelsperger.

18 Q Would those slides --

19 MS. HARDING: This is referring, Your Honor, to --  
20 actually I do not have the ACC. I don't have the exhibit  
21 number on my copy. Do you know the exhibit number, Nate?

22 MR. FINCH: No --

23 Q It's the paper, "Asbestos and Manmade Vitreous Fibers  
24 As Risk Factors For Diffuse, Malignant Mesothelioma; Results  
25 From A German Hospital Base Case-Control Study." Do you recall

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1 being asked questions about this paper?

2 A Yes, I do.

3 Q Okay. And do you recall asking whether counsel would like  
4 you to explain why you would not rely upon this paper for --

5 THE COURT: It's Exhibit ACC-422.

6 MS. HARDING: Thank you, Your Honor.

7 Q -- for reliable scientific conclusions about dose  
8 response?

9 A Yes.

10 Q Okay. I'm going to show you -- could you put a --  
11 actually it doesn't have a number; 62?

12 Q Now, Dr. Moolgavkar, you've already testified about the  
13 second part of that. Could you explain the concern you  
14 expressed in the first bullet point there, please?

15 THE COURT: Well, what are you looking at now?

16 MS. HARDING: The first bullet point --

17 THE COURT: On?

18 MS. HARDING: -- the Rodelsperger -- I'm sorry -- on  
19 the slide, Your Honor.

20 THE COURT: Yes, but what exhibit is this?

21 MS. HARDING: It's the number you just gave me.

22 THE COURT: Oh, 422. Okay. Thank you.

23 MS. HARDING: Yes, thank you.

24 A Yes. One of the things in the Rodelsperger paper is that  
25 if you look at the results, they are highly sensitive to the

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1 assumptions made. As, for example, the choice of cut points  
2 for categorical exposures. The results are also sensitive to  
3 the choice of controls that they use for doing the case-control  
4 analysis. And what they reported is that ignoring matching in  
5 the analysis, it started out as a matched case-control study  
6 and appropriately it should be analyzed as a matched  
7 case-control study. However, they tried to undo the matching  
8 and do some of the analysis and that led to considerable bias.  
9 That indicates to me that these results are not robust and that  
10 they are subject to considerable bias depending upon the  
11 assumptions that are made.

12 MS. HARDING: Could you put up Number 61, please?

13 A Yeah. These are the other limitations of the paper. They  
14 do not use actual industrial hygiene data to quantify exposure.  
15 They had, I believe, two experts who did the industrial hygiene  
16 estimation and there was only limited -- I don't think there  
17 was very good agreement between the experts regarding the  
18 exposure estimates. They did not try to distinguish between  
19 fiber type and they admit that they don't know what fiber type  
20 they're looking at. And they did a lung fiber burden analysis  
21 in an older study and in this they reported that there was only  
22 modest correlation between exposure estimates and lung burden  
23 for amphibole, but there was no correlation at all for  
24 chrysotile.

25 So the relevance of this study for chrysotile

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1 asbestos exposure is seriously in doubt. And for the other  
2 reasons that I mentioned, I don't think I will take the results  
3 of the study as indicating a dose response relationship at low  
4 exposures. What I would do, however, is consider this paper as  
5 an intriguing observation which should lead to further  
6 investigations of the same type but with better exposure  
7 estimates.

8 Q Dr. Moolgavkar, you were also asked about the Iwatsubu  
9 paper, and I'm just going to show you -- I think you prepared a  
10 slide for this one, too, 59?

11 A Yes. And here, as I was saying during the cross, they do  
12 not use actual industrial hygiene data to quantify exposures  
13 and throughout the paper they made these sorts of  
14 qualifications. Because no measurements available on asbestos  
15 levels were available, all estimations of exposure parameters  
16 were based on the experts subjectively; that is  
17 semi-quantification to which we subsequently assigned waiting  
18 factors. So they had to assign waiting factors. So they come  
19 up with some sort of a probabilistic exposure.

20 This index of cumulative exposure was expressed in  
21 terms of fiber per mil years inside quotation marks. So even  
22 the authors don't feel that they can -- and there are other  
23 statements of that nature throughout the paper that I will not  
24 read out.

25 Q With respect to the last bullet there about using matched

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1 pairs design. How does that impact your analysis of this  
2 study?

3 A Well, the thing is they used the matched pairs design  
4 which means that for every case they had one control that they  
5 selected. But it is my recollection now -- I don't have the  
6 paper in front of me -- that for a certain number of cases,  
7 they were not able to identify appropriate controls. So,  
8 therefore, in order to use all the cases, they broke the  
9 matched pairs design and analyzed the study as an unmatched  
10 design and that can lead to really serious bias in the  
11 estimates of the parameters. And I said that in Rodelsperger's  
12 paper, when they broke the matching they saw a huge difference  
13 in their risk estimates, and that just indicates how serious  
14 the bias can be when the matching is broken in a matched  
15 case-control study.

16 Q With respect to the studies that you were presented with  
17 and studies like this that attempt to subjectively -- wholly  
18 subjectively quantify asbestos exposures at very low levels,  
19 can you reliably or objectively verify the judgments made about  
20 those exposures in those kinds of studies?

21 A Well, that's outside my field of expertise, I am afraid.  
22 I'm not an industrial hygienist so I will not like to give you  
23 an opinion on that.

24 Q Okay. With respect to understanding dose response  
25 relationships with risk in disease though, is the subjectivity

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1 associated with those subjects and the lack of any objective  
2 data, is it or is it not one of the reasons why researchers  
3 like you and other researchers at EPA and Hodgson and Darnton  
4 don't include those kinds of studies in understanding dose  
5 response relationships?

6 UNIDENTIFIED SPEAKER: Objection; leading.

7 THE COURT: It's leading.

8 Q Dr. Moolgavkar, can you explain why researchers like  
9 yourself and the EPA and Hodgson and Darnton and Berman and  
10 Crump do not include studies such as the ones we've just  
11 discussed, Iwatsubu, Rodelsperger and other studies like that  
12 in their scientific quantification and estimation of dose  
13 response and disease?

14 MR. FINCH: Objection; lack of foundation,  
15 speculation.

16 THE COURT: No. I think he's already testified that  
17 they haven't got that and I believe the record will stand to  
18 that. So I think there is a foundation. I believe he said on  
19 cross exam that he would explain his reasons for disagreement  
20 with the study and that was deferred till redirect and this is  
21 the time. So overruled.

22 A Yes. Because there is simply not good enough exposure  
23 information that you can trust. I would not trust this kind of  
24 exposure information.

25 Q With respect to the questions that you were asked about

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1 the auto mechanic exposure and your analysis of risks not  
2 observed with respect to auto mechanics, too, I'm talking  
3 about --

4 A Yes.

5 Q I actually want to ask you a question about something that  
6 I don't have in front of me so give me one second, please.

7 (Pause)

8 MS. HARDING: Your Honor, I'm going to just come  
9 right back to that when I get it.

10 Q I want to ask you about the -- quickly about the Helsinki  
11 criteria. You were asked about ACC/FCR-398. And I want to --  
12 do you recall being asked questions about the Helsinki  
13 criteria?

14 A Yes, I do.

15 Q Okay. Could I direct your attention to Page 311? And  
16 looking at the second full paragraph, do you understand that  
17 the Helsinki criteria also had as one of its purposes the  
18 setting of criteria for compensation?

19 A Yes, I was aware of that.

20 Q Can you show where that is on the -- I'll read the  
21 paragraph. "Such developments enhance awareness of health  
22 hazards imposed by asbestos lead to practical prevention and  
23 appropriate compensation and also provide an opportunity to  
24 carry out international comparisons."

25 A Yes.

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1 Q Okay. Dr. Moolgavkar, you were asked questions about the  
2 article by Dr. Spertus, which I think -- I don't have the ACC's  
3 number -- "Malignant Mesothelioma Attributable Risk of Asbestos  
4 Exposure."

5 A Yes.

6 Q Do you recall being asked questions about that?

7 A Yes. Yes.

8 Q You relied upon this article in forming some of the  
9 opinions that you have in this case, correct?

10 A Well, only to the extent that I think it's the only paper  
11 that correctly makes an estimation of the attributable risk of  
12 asbestos exposure. What most papers do is they count up the  
13 number of mesothelioma cases that were exposed to asbestos, but  
14 that is not the appropriate way to do an attributable risk  
15 calculation. And Spertus, to my knowledge, is the only  
16 case-controlled study that has done the correct analysis to  
17 obtain an attributable risk.

18 Q And what was the attributable risk for women reported in  
19 the Spertus study, Dr. Moolgavkar?

20 A For pleural and peritoneal mesotheliomas combined, it was  
21 23 percent.

22 Q Okay. Attributable risk is different than background  
23 rates, is that correct?

24 A Yes. It's the fraction of cases that could be  
25 attributable to the exposure of interest.

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1 Q Okay. Does the finding of Spertus, which is the only --  
2 as you've testified -- the only study that attempts to  
3 calculate the attributable risk of mesothelioma, how does that  
4 impact your opinion?

5 A Well, one has to be cautious in translating any estimates  
6 of attributable risk from the population in which the study was  
7 carried out doing the other population. However, it suggests  
8 that perhaps 20, maybe between 20 and 30 percent, of  
9 mesothelioma among women might be attributable to asbestos  
10 exposure. And that again in turn influences my views on what  
11 the background rates of mesothelioma might be based on the  
12 analysis of Price and Ware.

13 Q One quick question about the analysis of Price and Ware.  
14 I think you've been through that. I think -- the calculation  
15 of the background rates in women were I think you said four per  
16 million?

17 A Well, it was -- he calculated the age adjusted rates in  
18 women to be about four per million, but I think it fluctuated  
19 between three and four per million.

20 Q And what were the rates if you were only looking at women  
21 who were 20 years or over?

22 A Then they estimated a rate of about five per million.

23 Q And why is that? Does that further inform your opinion  
24 about the estimation of background rates?

25 A Well, that leads me to conclude that an estimate of

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1 between two and four per million in the -- for the rate of  
2 spontaneous mesothelioma is conservative in the age group that  
3 we are concerned with in this case.

4 Q Let me see if I can --

5 (Pause)

6 Q Dr. Moolgavkar, I'd like to show you a fact sheet from  
7 National Cancer Institute, "Asbestos Exposure Questions and  
8 Answers." And it does not have -- I don't see a date on it.  
9 Have you --

10 MR. FINCH: Objection, Your Honor, beyond the scope  
11 of cross.

12 THE COURT: I don't know if it is or not yet, I  
13 haven't heard a question.

14 MS. HARDING: Well, Your Honor, Dr. Moolgavkar was  
15 asked several questions about his opinions regarding auto  
16 mechanics and this relates directly to that.

17 THE COURT: Is there an exhibit?

18 MS. HARDING: It's not an exhibit so I'll just have  
19 to make it -- oh, there we go, 700; GX-700. May I approach the  
20 witness, Your Honor?

21 THE COURT: Yes.

22 Q Have you seen this document before, Dr. Moolgavkar?

23 A Yes, I have.

24 Q And what is the National Cancer Institute?

25 A Well, it's the branch of the National Institute of Health

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1 that deals with cancer research and treatment.

2 MS. HARDING: Your Honor, I've given you my copy of  
3 the --

4 THE COURT: Oh.

5 MS. HARDING: -- quote I'm looking for.

6 THE COURT: Here, take it.

7 MS. HARDING: I'm sorry, Your Honor.

8 Q Dr. Moolgavkar, could you turn to Page 3 of that document,  
9 please?

10 A Yes.

11 Q And do you see the paragraph beginning -- Paragraph 4 --  
12 "Who is at risk of an asbestos-related disease?"

13 A Yes.

14 Q And do you see the -- going down into the second paragraph  
15 where it says, "However, recent studies do not support an  
16 increased risk of lung cancer, mesothelioma, among auto  
17 mechanics exposed to asbestos through brake repair." Do you  
18 see that?

19 A I do.

20 Q Okay. In presenting your various opinions in your  
21 reports, your opinion regarding auto mechanics was just one  
22 opinion of many analyses and opinions, correct?

23 A Yes.

24 Q Okay. What is the -- what's the significance of that  
25 finding to you as it relates to your opinions regarding dose

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1 response relationships with asbestos exposure and mesothelioma  
2 and lung cancer?

3 A Well, despite the fact that a lot of the asbestos in brake  
4 linings is turned into -- converted into forsterite during the  
5 braking process because of high heat, the results from the  
6 industrial hygiene studies have reported there is still  
7 measurable amount of chrysotile and those are the results from  
8 the latest study I presented earlier today on this chart to the  
9 left. And I think the significance of this is the following.  
10 That there are multiple well-conducted epidemiological studies.  
11 I showed only the case-control studies that are in addition and  
12 other studies that I use as supportive evidence.

13 So these well-conducted epidemiological studies, not  
14 one single one of them has found an elevated risk of  
15 mesothelioma or lung cancer for auto mechanics. And that is  
16 strongly suggested that -- which says that welcome  
17 epidemiological studies of low levels of chrysotile asbestos  
18 have failed to find an increased risk associated with that  
19 exposure.

20 Q So is the part that's most significant to you what the  
21 actual levels of exposure are, or the fact that there is some  
22 exposure there and the studies are not observing risk?

23 A Well, I don't know exactly what the automobile mechanics  
24 are exposed to. All I can say is that there is some level of  
25 exposure below which welcome that the studies have failed to

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1 find an increased risk.

2 MS. HARDING: I'm almost done, Your Honor, I promise.

3 Q You were asked a bunch of questions about your  
4 doubling-dose calculations relating to the 3.2 doubling-dose  
5 from mesothelioma for mixed fibers. Do you recall the series  
6 of questions?

7 A Yes.

8 Q You were asked to make adjustments based on statements of  
9 counsel, correct?

10 A Yes.

11 Q Do you agree or disagree that your calculations as done  
12 according to the methods that you explained in your reports and  
13 in your testimony today, should be adjusted based upon any of  
14 the questions that you were asked by counsel today during your  
15 cross examination?

16 A No, I don't think so. I freely admit that there's a great  
17 deal of uncertainty in all these calculations because we really  
18 don't know what is going on in the low dose region. Having  
19 said that, I'm using the best estimates available to me and I'm  
20 making all kinds of conservative assumptions in the calculation  
21 of the doubling-dose. And so I would not really modify any of  
22 my calculations based on what happened today.

23 Q One other thing. You mentioned that in your response,  
24 from the responses you said that the 3.2 doubling-dose  
25 calculation includes chrysotile and what's the significance

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1 of that?

2 A Well, because chrysotile is a very strong carcinogen and  
3 is much more potent than chrysotile in causing mesothelioma. I  
4 think the reason that the doubling-dose for the mixed fibers is  
5 as low as it is, 3.2, is because there's a lot of chrysotile  
6 in that calculation.

7 MS. HARDING: Your Honor, give me one second, please.

8 (Pause)

9 Q Last question, Dr. Moolgavkar. You were read a statement  
10 from your report on Page 7 of your June 11th, 2007 report. I'm  
11 just going to show that to you again and read it. "The only  
12 way to determine whether a specific exposure to asbestos was a  
13 factor in causing a claim disease is to conduct an explicit  
14 evaluation of the role of that asbestos exposure and causing  
15 the disease relative to the risk of developing the disease  
16 spontaneously in the additional risks imposed by other  
17 exposures, including other asbestos exposures." Do you recall  
18 that --

19 A Yes.

20 Q -- that statement and the line of questioning? Does that  
21 statement regarding individuals and understanding their  
22 exposures, from your report, limit in any way the validity of  
23 your testimony regarding low dose risk of mesothelioma or lung  
24 cancer?

25 A No.

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1 MS. HARDING: I'm done, Your Honor.

2 Thank you, Dr. Moolgavkar.

3 MR. FINCH: Brief recross, Your Honor?

4 THE COURT: Yes.

5 RECROSS EXAMINATION

6 BY MR. FINCH:

7 Q Dr. Moolgavkar, do you still have the 1986 EPA air-born  
8 asbestos health assessment?

9 A Yes.

10 Q Could you -- it's Exhibit ACC/FCR-298. You were asked  
11 some questions on redirect by Ms. Harding about the all fibers  
12 potency factor, correct?

13 A Yes.

14 Q Okay. Could you turn to Page 90, and that's the chart of  
15 the four studies, correct?

16 A That's correct.

17 Q And the insulation workers, the potency factor as  
18 estimated by the EPA is a higher potency factor than the all  
19 fibers, correct?

20 A That's correct.

21 Q And the insulation workers' potency factor, the insulation  
22 workers were exposed only to chrysotile and amosite and not  
23 chrysitolite, correct?

24 A That's correct.

25 Q Price and Ware, you were asked a couple of questions about

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1 Price and Ware's background risk. Could you turn to  
2 ACC/FCR-560 in your exhibit binder?

3 MR. FINCH: Would you put that up, John?

4 Q Page 111. Next to last paragraph. All right. Price and  
5 Ware state that if all female cases of mesothelioma were  
6 unrelated to asbestos exposure, their analysis indicates that  
7 the lifetime background risk could be 3.6 times ten to the  
8 minus fourth, correct?

9 A Yes.

10 Q And then they say these background levels would be upper  
11 bounds if a portion of female cases of mesothelioma were due to  
12 occupational, domestic, or unique high-level environmental  
13 exposures, correct?

14 MS. HARDING: Your Honor, I think it's the same  
15 questions he asked him on cross.

16 MR. FINCH: No, I didn't ask about this sentence on  
17 cross.

18 MS. HARDING: That sentence was up there during your  
19 cross examination.

20 MR. FINCH: It was on the screen, but I didn't ask  
21 him a question about it.

22 Q Isn't it true, Dr. Moolgavkar, that the background risk  
23 levels would be upper bounds if a portion of the female cases  
24 of mesothelioma were due to occupational, domestic, or unique  
25 high environmental exposures?

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1 A Well, it would -- there would be upper bounds, but as I  
2 said, I'm interested in women over the age of 20 and if that  
3 were applied I think the two would sort of cancel out.

4 Q Also, don't the authors say that the background rates for  
5 females may not apply directly to males because of the  
6 differences in the percentages of pleural and peritoneal  
7 mesothelioma?

8 A Oh, yeah, that's always possible. All I can do, Mr.  
9 Finch, is use the best available information.

10 Q Okay. You were asked some questions --

11 A And that's the best information available to me.

12 Q You were asked some questions about an exhibit that Ms.  
13 Harding showed you. It's been marked Grace Exhibit 700,  
14 Asbestos Exposure Questions and Answers.

15 A Yes.

16 Q Do you still have that document?

17 A I do.

18 MR. FINCH: John, do you have Grace exhibits on the  
19 -- okay -- the ELMO?

20 Q This has a statement about the risks of workers exposed to  
21 asbestos and she focused you on automobile mechanics, correct?

22 A Yes.

23 Q Okay. The very next paragraph they write, "Those involved  
24 in the rescue, recovery and clean-up at the site of the  
25 September 11th, 2001 attacks on the World Trade Center, New

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1 York City -- "

2 MS. HARDING: Your Honor, this --

3 Q " -- are another group of risks developing in  
4 asbestos-related disease."

5 MS. HARDING: Your Honor, I'm just going to object.  
6 It's beyond the scope.

7 THE COURT: It certainly is.

8 MR. FINCH: They asked him about this --

9 THE COURT: Because of auto workers. Do you want to  
10 open up a whole new can of worms and start another hour worth  
11 of testimony? Are we going to have claims in this case that  
12 was filed somehow or other related to the World Trade Center?

13 MR. FINCH: We very well might.

14 Q Were you aware, Dr. Moolgavkar, that the World Trade  
15 Center had Grace asbestos in it?

16 MS. HARDING: Your Honor, this is way beyond the  
17 scope.

18 THE COURT: Yes, it is. You can recall him.

19 MR. FINCH: Well, there's no foundation for it.

20 THE COURT: You can recall him in your case. If you  
21 want to get into this, you can recall him in your case. This  
22 is way beyond the scope of redirect. This is recross on  
23 redirect. This issue was not raised on recross.

24 MR. FINCH: Thank you, Your Honor.

25 MR. ANSBRO: Very brief.

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1 THE COURT: As long as it's not about something that  
2 wasn't raised on recross.

3 MR. ANSBRO: On redirect.

4 THE COURT: On redirect. Thank you.

5 RECROSS EXAMINATION

6 BY MR. ANSBRO:

7 Q You were asked about the reliability of the Peto model and  
8 the calculation that you've used here on redirect and you  
9 described that it's reliable and for that reason you've used it  
10 and you believe you used it accurately. Let me just -- I want  
11 to go back to your e-mail which is marked for identification as  
12 ACC-FCR --

13 MS. HARDING: Your Honor, I think this goes way  
14 beyond the scope. I asked him about his method.

15 THE COURT: Let me get a question first, please.

16 MS. HARDING: Okay.

17 THE COURT: Go ahead.

18 Q Mr. Moolgavkar --

19 THE COURT: I'm sorry, what's the exhibit? I  
20 apologize, I didn't get the exhibit number.

21 MR. ANSBRO: It's ACC/FCR -- for identification --  
22 3014.

23 THE COURT: All right, thank you.

24 Q Directing your attention, doctor, to the Peto formula  
25 that's laid out here. You write that Mr. Bailor has correctly

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1 pointed out the formula, do you see that?

2 A Yes.

3 Q Where is the background component of that formula?

4 MS. HARDING: Your Honor, this is -- we went way over  
5 this in their cross examination and all I asked him was about  
6 the method that he used and was it reliable.

7 MR. ANSBRO: This is the method that he used and he  
8 testified on redirect that it was reliable, and for that reason  
9 he felt comfortable having it form the basis for his various  
10 calculations here. That's where this goes. This gets  
11 underneath that. The issue -- the door was opened on redirect.  
12 I just have four or five questions, Your Honor.

13 THE COURT: I don't know why you didn't ask this.  
14 This exhibit was not pointed out on redirect. You went over  
15 this on your cross examination. It wasn't raised on redirect.

16 MR. ANSBRO: The Peto formula. I'm not going to be  
17 going into other aspects of this demonstrative, I'm just  
18 focusing on the Peto formula and it's the Peto formula that was  
19 raised on redirect.

20 THE COURT: It was also raised on direct and on cross  
21 examination by everybody.

22 MR. ANSBRO: Right.

23 THE COURT: Right.

24 MR. ANSBRO: And now I'm --

25 THE COURT: You're doing it again, which isn't the

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1 purpose --

2 MR. ANSBRO: I'm doing cross again because it was  
3 followed up on in redirect.

4 MS. HARDING: Your Honor --

5 THE COURT: If it's going to the reliability, which  
6 was the question on redirect, you can pursue it.

7 Q My question, Doctor, is where is the background component  
8 in the formula that's set out in your e-mail?

9 MS. HARDING: Your Honor, how does that relate to  
10 reliability?

11 THE COURT: I'll find out. The doctor can answer  
12 that question.

13 A Well, the Peto formula was developed in groups of workers  
14 who were exposed to asbestos and developed mesothelioma. So  
15 clearly among this group of workers, some spontaneous incidents  
16 of mesothelioma would also have occurred. So the Peto formula  
17 is a formula that captures the entire mesothelioma experience  
18 of workers exposed to asbestos. So it includes also the number  
19 of mesothelioma cases that would arise spontaneously in that  
20 group of workers.

21 Q But my question was where in the formula as it's set forth  
22 in your e-mail is that imbedded?

23 MS. HARDING: Your Honor, now it's going way beyond  
24 the scope of redirect. We did not get into the calculations.  
25 They had three hours plus to answer all these questions.

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1 THE COURT: Ms. Harding, they did. It will take the  
2 doctor longer to explain this than it will to argue about it.

3 MS. HARDING: Yes.

4 THE COURT: Doctor, if you're able to point out how  
5 it's accounted for in the formula, would you, please?

6 A Well, it's just implicit in the formula. There isn't a  
7 separate term for background. There is not a separate term for  
8 background.

9 Q If I wanted to take the background out of this formula  
10 then, how would I adjust the calculation?

11 MS. HARDING: All right. Now, it's going beyond the  
12 question of reliability in asking him to do further things and  
13 more calculations and I think that's beyond the scope.

14 THE COURT: That is beyond the scope of redirect but,  
15 frankly, if that's part of your formula, doctor, I'd like to  
16 hear how you did it.

17 A Okay. Well, you don't remove the background from the Peto  
18 formula, you simply count up the number of mesotheliomas that  
19 you get for any level of exposure and then you have to depend  
20 on some computation of the background rates. As I said, it's a  
21 two-step process.

22 Q I'm missing you then. That computation of background  
23 rates, where -- which of the values in the Peto formula is that  
24 -- embraces that?

25 A Well, as I told you, that does not come from the Peto

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1 formula, that comes from Price and Ware.

2 Q Looking at the Peto formula then, if you set F -- F is the  
3 exposure concentration? If we set F to zero, that would be no  
4 exposure.

5 A That is correct.

6 Q Then am I correct that on the other side of the equation,  
7 the risk of mortality, that would also be zero, yes?

8 A Correct.

9 MS. HARDING: Your Honor, I'm just going to object to  
10 this continuing line of questioning. I think all of these  
11 questions have been asked -- all these questions on cross.

12 THE COURT: This is going well beyond the scope of  
13 redirect.

14 Q Your answer was yes to that, doctor?

15 THE COURT: It's going beyond the scope.

16 Q Your answer to my last question was yes?

17 MS. HARDING: He didn't answer it.

18 THE COURT: Pardon me. It's going beyond the scope.

19 MR. ANSBRO: All right. I'll rest, Your Honor.

20 THE COURT: Ms. Harding?

21 MS. HARDING: Nothing further, Your Honor.

22 THE COURT: You're excused, doctor. Thank you.

23 THE WITNESS: Thank you.

24 THE COURT: Do you need --

25 MR. FINCH: Your Honor, may I hand up the

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1 demonstratives that we marked now?

2 THE COURT: Yes, sir. Are you going to be recalling  
3 Dr. Moolgavkar in your case?

4 MR. FINCH: No. No, Your Honor. Thank you, Dr.  
5 Moolgavkar.

6 THE COURT: All right. You're excused. Thank you  
7 very much.

8 (Pause)

9 THE COURT: All right. About the exhibits, the  
10 286 -- 2086 exhibits that I admitted for demonstrative purposes  
11 this morning. All right, Ms. Harding -- Mr. Bernick.

12 MR. BERNICK: I think that the only other business  
13 that we have to conduct today are some summaries that I think  
14 we've agreed -- I know that we've agreed with the other side  
15 are not objected to and we'd like to offer them into evidence  
16 at this point. Our next live witness is Dr. Anderson, who will  
17 be available first thing tomorrow morning. We expect to finish  
18 her testimony well in advance of the close of day tomorrow,  
19 though I'd like to address that briefly with the Court because  
20 I would like to do that.

21 So, unless the Court would like to do something else,  
22 we just have a few of these demonstratives -- I'm sorry,  
23 summaries -- to offer into evidence and I'd like to show them  
24 at the same time, is that appropriate now?

25 THE COURT: That's fine. Sure.

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1 MR. BERNICK: I'm showing Your Honor exhibit  
2 GG-2094A. If we could put that up. I think we have to switch  
3 to the other system.

4 Yes, Your Honor. This is -- GG-2094A is entitled the  
5 Henry X-ray Study and this became the series of claimant E  
6 readers who have been listed. And then the number of readings  
7 -- the number of readings that have a profusion score greater  
8 than or equal to 1/0. And then based upon the study, the  
9 percentage of readings that occurred and then the percentage  
10 that were over-read.

11 This we're offering -- and I believe that there's no  
12 objection from the ACC or the FCR -- it's being offered as a  
13 Rule 1006 summary.

14 MR. FINCH: Correct. No objection.

15 MR. ANSBRO: No objection, Your Honor.

16 THE COURT: Okay. What does over-read mean?

17 MR. BERNICK: Over-read means that according to Dr.  
18 Henry's study they reached a conclusion that was different from  
19 the conclusion -- these people reached a conclusion that was  
20 different from the conclusion that was reached by the panel of  
21 independent B readers.

22 THE COURT: All right.

23 MR. BERNICK: The next document is GG-2179, also  
24 offered --

25 THE COURT: Pardon me, one second.

1 MR. BERNICK: Also offered as a Rule 1006 summary,  
2 2179.

3 THE COURT: All right, thank you.

4 MR. BERNICK: We offer that.

5 MR. FINCH: No objection.

6 MR. ANSBRO: No objection.

7 THE COURT: All right. One second.

8 All right. It's admitted. Thank you.

9 MR. BERNICK: Yeah. This is an exhibit that's simply  
10 in the -- and the source of the exhibit is indicated in the  
11 note that appears at the bottom of the exhibit. This simply  
12 reflects the trusts. They have ceased accepting reports and  
13 underlying evidence from some or all of the doctors that are  
14 then identified.

15 We then have GG-2180, which we would offer as a  
16 summary under Rule 1006.

17 MR. MULLADY: No objection for both of us.

18 MR. BERNICK: Okay.

19 THE COURT: All right. It's admitted.

20 MR. BERNICK: I know you're always very careful to  
21 make sure that the ACC doesn't speak for the FCR.

22 This is a list of the screeners that have been  
23 suspended by the trusts, the screening companies, and it lists  
24 the trusts that are involved and the screeners that are  
25 involved. And again, the source is indicated at the foot of



1 the document.

2 We then have exhibit GG-2187, 88 and 89 and these  
3 again are based upon Rule 1006 summaries and we would offer  
4 those as well.

5 MR. FINCH: No objection, Your Honor. But under the  
6 rule of completeness, the ACC would offer Grace Exhibit 155  
7 which is -- this is a summary chart that based on answers to  
8 sworn deposition questions by the Manville Trust in response to  
9 a subpoena, the Manville Trust has certified this is a business  
10 record. It was produced in this litigation. The entire  
11 subpoena response is about ten or 12 pages. This is only a  
12 portion of the information. We would offer GX-155, which I  
13 believe is the exhibit from which this information comes. I  
14 recognize the data. I'm not 100 percent sure about the exhibit  
15 number. It's what's set at the bottom of the screen. Under  
16 the rule of completeness, I would offer the entire exhibit  
17 which has been certified as a business record of the Manville  
18 Trust and sworn to under oath.

19 MR. BERNICK: Yeah. I don't -- the purpose of this  
20 exercise is to offer Rule 1006 summary. Under those  
21 circumstances, it's unnecessary for the underlying document to  
22 come in. I had no notice as I sat here today -- as I sit here  
23 today -- that there was to be a tender of an additional  
24 document on the basis of completeness. I'm not aware of any  
25 objection that was made to this on the basis of incompleteness.

1 I'd be happy to consider the tender over the break between now  
2 and tomorrow morning and determine whether I have a problem  
3 with it. But I simply have not read through the document from  
4 that point of view.

5 THE COURT: All right. Why don't you take a look at  
6 it tonight and see what you think. But for now, because these  
7 are summaries, I take it there's no objection to the summaries.

8 MR. FINCH: No, there's no objection to the summary,  
9 Your Honor.

10 THE COURT: All right. GG-2187, 2188 and 2189 -- oh,  
11 I'm sorry. I take it the FCR agrees with this, as well?

12 MR. MULLADY: No objection, Your Honor.

13 THE COURT: All right. Admitted. And tomorrow  
14 morning you can advise me with respect to GX-155. And let me  
15 make a note, please.

16 Why don't you just re-offer it again tomorrow after  
17 you've had an opportunity to take a look at this.

18 MR. BERNICK: Then we have exhibits GG-2190 through  
19 2192. These are again Rule 1006 summaries and we would offer  
20 them as such.

21 MR. FINCH: No objection.

22 MR. MULLADY: No objection from the FCR.

23 MR. BERNICK: Your Honor, I think that we have a  
24 separate notebook that's available for the Court that has all  
25 these documents.

1 THE COURT: Wait, I'm sorry. You've taken these down  
2 too soon.

3 MR. BERNICK: Yeah, let me give you -- would you like  
4 the numbers again, Your Honor?

5 THE COURT: No, I've got the numbers, I just need to  
6 see what they are.

7 MR. BERNICK: Okay. This is -- I think you have the  
8 last set.

9 THE COURT: What's 2192, please?

10 MR. BERNICK: Yeah.

11 THE COURT: All right. 2190 through 2192 were  
12 admitted.

13 MR. BERNICK: And I think that concludes our business  
14 today if you want to tender that to the Court.

15 THE COURT: All right.

16 MR. BERNICK: As I said, we're prepared to resume  
17 again in the morning.

18 THE COURT: Thank you.

19 MR. BERNICK: We had planned also tomorrow -- I think  
20 we have some more summaries and we'll see whether they're  
21 objected to or not. Mr. Mullady has graciously offered, as  
22 always, to see if we can work out the objections that they may  
23 have. So we'll endeavor to do that tonight.

24 And I think if we do have time, we'd also be prepared  
25 to take up the Rule 408 motion in limine and Your Honor knows

1 that's been very extensively briefed, but there are two new  
2 briefs that were submitted; one the motion and one our response  
3 to it, that I believe are in the docket of the Court. That  
4 is --

5 THE COURT: The last week you mean.

6 MR. BERNICK: Yes, that's correct.

7 THE COURT: Yes. Yes, I have those. I thought you  
8 meant something more.

9 MR. BERNICK: No.

10 THE COURT: Okay. Yes, I have those briefs.

11 MR. BERNICK: Thank you.

12 THE COURT: I have the motion with some citations and  
13 I have a separate brief.

14 MR. BERNICK: Yes.

15 THE COURT: Okay. All right. Anyone else have any  
16 additional matters to address this afternoon?

17 UNIDENTIFIED SPEAKER: No, ma'am.

18 MR. BERNICK: The only thing that I'd add is I know  
19 nobody wants to let the witness go before they get their last  
20 questions in, but this practice of having the examinations go  
21 beyond the scope of the crosses and redirects, it's going to be  
22 a continuing problem and it really is something that makes it  
23 very difficult to schedule witnesses. And, you know, I think  
24 there's a sauce rule, which is that if they're going to do it  
25 and Your Honor is going to -- we're going to want to do it as

1 well. And I think if we want to try to stick to the schedule,  
2 it's pretty important that people endeavor to stay within the  
3 scope of the examination that they're responding to. And I'm  
4 sure that we'll be tempted to be guilty of the same sin, but I  
5 think that we rather -- rather than having contests with the  
6 Court at the end of the day, I just really think that we've got  
7 to get on with the case.

8 THE COURT: No one has ever given me a schedule that  
9 says how long any party is going to take with any particular  
10 witness. So I have to date not been involved in that process.  
11 If you would like me to get involved, I will be more than happy  
12 to say this is how long each of you will have with each  
13 particular witness. But I haven't been asked to do that.

14 MR. BERNICK: And I think at this point, in point of  
15 fact, while it went over with respect to the witness yesterday,  
16 Dr. Leigh is fairly considerably -- I know that Mr. Finch  
17 finished on the minute within the time that he had been  
18 allotted and I don't think we had a huge problem here. But it  
19 is -- there has been a problem and I just think that -- all I'm  
20 really urging is that if Your Honor is going to -- if Your  
21 Honor is going to adhere, at some point as we go through the  
22 trial as I think as time passes you will, to the rule that you  
23 can't exceed the scope of the prior examination, well, we would  
24 ask that be fairly literally enforced now so that down the road  
25 as things become tight on time, it doesn't have an imbalanced

1 effect on our cross examination, which I suspect is going to be  
2 fairly long because their list of witnesses is very long.

3 THE COURT: I think I have made rulings on every  
4 objection that's been raised.

5 MR. BERNICK: Yes, you have.

6 THE COURT: I have nothing more to say on the issue.

7 Okay. We're adjourned until nine o'clock tomorrow  
8 morning.

9 COUNSEL: Good night, Your Honor.

10 THE COURT: Thank you.

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C E R T I F I C A T I O N

We, LYNN SCHMITZ, MARY POLITO, ELAINE HOWELL, DENISE O'DONNELL and PATRICIA A. KONTURA, court approved transcribers, certify that the foregoing is a correct transcript from the official electronic sound recording of the proceedings in the above-entitled matter, and to the best of our ability.

/s/ Lynn Schmitz  
LYNN SCHMITZ

/s/ Mary Polito  
MARY POLITO

/s/ Elaine Howell  
ELAINE HOWELL

/s/ Denise O'Donnell  
DENISE O'DONNELL

/s/ Patricia A. Kontura  
PATRICIA A. KONTURA  
J&J COURT TRANSCRIBERS, INC.

DATE: March 27, 2008

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